

Data from: Phylogenetic signals in host-parasite associations for Neotropical bats and Nearctic desert rodents

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Abstract

Hosts and their parasites have strong ecological and evolutionary relationships, with hosts representing habitats and resources for parasites. In the present study, we use approaches developed to evaluate the statistical dependence of species trait values on phylogenetic relationships to determine whether host–parasite relationships (i.e. parasite infections) are contingent on host phylogeny. If host–parasite relationships are contingent on the ability of hosts to provide habitat or resources to parasites, and if host phylogeny is an effective surrogate for among-host variation in habitat and resource quality, host–parasite relationships should evince phylogenetic signals (i.e. be contingent on host phylogeny). Because the strength of ecological relationships between parasites and their hosts may affect the likelihood of phylogenetic signals occurring in host–parasite relationships, we hypothesized that (1) host specificity would be positively correlated with the strength of phylogenetic signals and (2) the strength of phylogenetic signals will be greater for parasites

that rely more on their host throughout their life cycle. Analyses were conducted for ectoparasites from tropical bats and for ectoparasites, helminths, and coccidians from desert rodents. Phylogenetic signals were evaluated for parasite presence and for parasite prevalence. The frequency of phylogenetic signal occurrence was similar for parasite presence and prevalence, with a signal detected in 24–27% of cases at the species level and in 67% and 15% of cases at the genus level for parasites of bats and rodents, respectively. No differences in signal strength or the likelihood of detecting a signal existed between groups of parasites. Phylogenetic signal strength was correlated with host specificity, suggesting that mechanisms increasing host specificity also increase the likelihood of a phylogenetic signal in host use by parasites. Differences in the transmission mode did not affect signal strength or the likelihood of detecting a signal, indicating that variation in host switching opportunities associated with the transmission mode does not affect signal strength.

Usage Notes

Host-parasite phylo signals data

This data is the prevalence data for ectoparasite species and genera (only genera represented by multiple species) recorded from bats of Paraguay and for ectoparasite, helminth, and coccidian species and genera (only genera represented by multiple species) recorded from rodents from the Sevilleta LTER site in the Southwestern United States. This is the parasite data on which analyses of phylogenetic signals were based for the associated paper. This and other associated data are available from the Sevilleta LTER web site as well as from the dissertation of SJ Presley (which can be downloaded for free from the electronic archives of the library of Texas Tech University).

References

This dataset is supplement to <https://doi.org/10.1111/bij.12601>

Location

 New Mexico

 Paraguay

Keywords

ectoparasites, host switching, Cyclophyllidea, Polyclenidae, Sciuridae, Rhabditida, Nycteribiidae, Moniliformida, Brownian motion model, Strongylida, Vespertilionidae, coevolutionary relationships, Phthiraptera, Oxyurida, Spirurida, Cricetidae, Phyllostomidae,

Spinturnicidae, Siphonaptera, Heteromyidae, Ascaridida, Ischnopsyllidae, Ixodidae, Chiroptera, Noctilionidae, Myobiidae, Rodentia, Trichurida, Argasidae, Streblidae, Macronyssidae, cospeciation, Host specificity, helminths, Chirodiscidae, Molossidae, Holocene, Eucoccidiorida, Diptera, Trombiculidae

Files

1 files for this dataset

Host-parasite phy...ignals data.xlsx	43.86 kB	application/vnd.openxmlformats- officedocument.spreadsheetml.sheet
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